

**BEFORE THE DEPARTMENT OF
NATURAL RESOURCES AND CONSERVATION
OF THE STATE OF MONTANA**

IN THE MATTER OF APPLICATION FOR)	
BENEFICIAL WATER USE PERMIT NO. 411)	PROPOSAL FOR DECISION
11495000 BY FIELDSTONE ESTATES)	

Pursuant to the Montana Water Use Act and to the contested case provisions of the Montana Administrative Procedure Act, and after notice required by Mont. Code Ann. § 85-2-307, a hearing was held on September 1, 2004, in Helena, Montana, to determine whether a beneficial water use permit should be issued to Fieldstone Estates, hereinafter referred to as "Applicant" for the above application under the criteria set forth in Mont. Code Ann. § 85-2-311.

APPEARANCES

Applicant appeared at the hearing by and through counsel, W. Carl Mendenhall. Rick Kenison, Owner-Manager of Fieldstone Estates, LLC ; Patrick Faber, Aqua Bono Consulting; James E. Taylor, P.E., Taylor and Associates/Tec-net, Ltd.; testified for the Applicant.

Objectors Lonnie and Phyllis Brookshire, Mary K. Clark, Vivian and Ron Drake, Jinx and Susan McCormack, Kenneth McNees, Roy Pace, Robert and Tona Pierson, Jason Tabbert, Rod Tabbert, Richard Wolstein, and Brendan and Tria McCormack, appeared at the hearing by and through counsel, Harley R. Harris, and Richard R. Thweatt. Mitchell W. Reynolds, PhD., research geologist, U.S. Geological Survey (USGS); Joseph T. Gurrieri, hydrogeologist; Vivian M. Drake, hydrogeological engineer, Drake Engineering; testified for the Objectors.

Russell Levens, Hydrogeologist, Department of Natural Resources and Conservation (Department) was called to testify by the Hearing Examiner.

EXHIBITS

Both Applicant and Objectors offered exhibits for the record. The exhibits are admitted into the record to the extent noted below.

Applicant offered 36 exhibits for the record. The Hearing Examiner accepted and admitted into evidence Applicant's Exhibit Nos. A1-A36.

Applicant's Exhibit A1 is a copy of the October 5, 2000 Mountain Trades Estates, Aquifer Pumping Test Work Plan.

Applicant's Exhibit A2 is a copy of the resume of James E. Taylor, P.E. & Project List.

Applicant's Exhibit A3 is a copy of the resume of Patrick Faber.

Applicant's Exhibit A4 is a copy of a Lindsay Drilling Brochure.

Applicant's Exhibit A5 is a copy of documents which show the conversion of the raw numbers from the data logger into water levels for the November 2002 test.

Applicant's Exhibit A6 is a copy of the resume of Terry Lindsay.

Applicant's Exhibit A7 is a copy of Pump curves from Lindsay Drilling.

Applicant's Exhibit A8 is Documents regarding the first pump test.

Applicant's Exhibit A9 is Applicant's Map 1.

Applicant's Exhibit A10 is Applicant's Map 2.

Applicant's Exhibit A11 is Applicant's Map 2-A (color over an air photo).

Applicant's Exhibit A12 is Applicant's Map 3.

Applicant's Exhibit A13 is a copy of the Draft Source Water Protection Plan submitted to Steve Kilbreath at DEQ.

Applicant's Exhibit A14 is a copy of a letter dated 11/7/02 from Steve Kilbreath, DEQ, to Jim Taylor.

Applicant's Exhibit A15 is a copy of soil description forms completed by Frank Preskar.

Applicant's Exhibit A16 consists of copies of documents concerning percolation testing.

Applicant's Exhibit A17 is a Geologic map of the area.

Applicant's Exhibit A18 is a Geologic map of the area (modified from Schmidt, 1986).

Applicant's Exhibit A19 is Mr. Pat Faber's geologic cross section.

Applicant's Exhibit A20 is a copy of DNRC Draft Department Guidelines for Test Wells & Aquifer Tests (July 15, 2003).

Applicant's Exhibit A21 is a copy of Collection & Analysis of Pumping Test Data, p. 553.

Applicant's Exhibit A22 consists of time-draw down plots and information.

Applicant's Exhibit A23 is a copy of a hydrograph from a nearby USGS monitoring well.

Applicant's Exhibit A24 is a copy of Conclusion of law number 10 from the North Hills Temporary Controlled Ground Water Area.

Applicant's Exhibit A25 is a copy of the Drake well hydrograph.

Applicant's Exhibit A26 is a copy of an eight-page document by Patrick Faber entitled *Sustainability & Potential for Adverse Effects, Fieldstone Estates Beneficial Use Permit*.

Applicant's Exhibit A27 is a copy of Helena Valley Groundwater Monitoring – measurements from nearby wells.

Applicant's Exhibit A28 is a copy of a November 19, 2003 email from Kathy Moore to Jim Taylor with Helena Valley Groundwater Monitoring document attached (Kathy Moore deposition Exhibit No. 1).

Applicant's Exhibit A29 is a copy of *Bridge Creek Estates Aquifer Test Results & Water Availability Study*, July 2003.

Applicant's Exhibit A30 is a copy of partial preliminary data/results from the July 26-29, 2004 pump testing at Bridge Creek Estates.

Applicant's Exhibit A31 is a copy of Pat Faber's supplemental disclosure and response.

Applicant's Exhibit A32 is a copy of a Pat Faber sketch.

Applicant's Exhibit A33 is a copy of the Deposition of Kathy Moore taken to preserve her testimony in this matter. The Deposition was offered as an exhibit; however, it is admitted into the record subject to objections made in the deposition. No objections were found in the Deposition, therefore, the Deposition is a part of the record.

Applicant's Exhibit A34 is a copy of the *HYDROGEOLOGY OF THE HELENA VALLEY-FILL AQUIFER SYSTEM, WEST-CENTRAL MONTANA*, U.S. Geological Survey, Water-Resources Investigations Report 92-4023 (i.e., the Briar Madison Report).

Applicant's Exhibit A35 is a copy of Objectors' Answers to Applicant's First and Second Discovery Requests.

Applicant's Exhibit A36 is a copy of Objectors' Answers to Applicant's Third Discovery Requests.

Objectors offered 56 exhibits for the record. The Hearing Examiner accepted and admitted into evidence Objectors' Exhibit Nos. 1-5, 7-42, 45-51, 56.

Objectors' Exhibit 1 is a copy of the Fieldstone Application/Amended Application.

Objectors' Exhibit 1-A is a copy of the Fieldstone Estates Aquifer Test Results & Water Availability Study January 2003.

Objectors' Exhibit 2 is a copy of the Amended Application dated October 25, 2002.

Objectors' Exhibit 3 is a copy of the Levens August 22, 2002 Memo.

Objectors' Exhibit 4 is a copy of the Levens February 24, 2003 Memo.

Objectors' Exhibit 5 is a copy of the Levens June 23, 2004 Memo.

Objectors' Exhibit 6 was **not** admitted after Applicant's objection was sustained.

Objectors' Exhibit 7 is a copy of the Petition to DNRC for North Hills Controlled Groundwater Area.

Objectors' Exhibit 8 is a copy of the Final EA North Hills Controlled Groundwater Petition.

Objectors' Exhibit 9 is a copy of the Proposal for Decision on Petition for North Hills Controlled Groundwater Area.

Objectors' Exhibit 10 is copy of the Order regarding the Petition for North Hill Controlled Groundwater Area.

Objectors' Exhibit 11 is copy of the Joe Gurrieri June 7, 2004 Evaluation of Fieldstone Estates Aquifer Test Information.

Objectors' Exhibit 12 is a page entitled: Distance Drawdown Graph.

Objectors' Exhibit 13 is a page entitled: Shape of Cone of Depression at Maximum drawdown graph.

Objectors' Exhibit 14 is a page entitled: Conclusions.

Objectors' Exhibit 15 is a page entitled: Conclusions Cont.

Objectors' Exhibit 16 is a page entitled: Problems with Pump Test.

Objectors' Exhibit 17 is a page entitled: Problems with Pump Test Cont.

Objectors' Exhibit 18 is a page entitled: Problems with Cooper-Jacob Time Drawdown analysis – observation well.

Objectors' Exhibit 19 is a page entitled: Problems with Recovery Analysis.

Objectors' Exhibit 20 is a document entitled: Report on Clay Profiles.

Objectors' Exhibit 21 is a copy of Brookshire Static Water Level Measurement Table.

Objectors' Exhibit 22 is a copy of Glass Drive Static Water Level Measurements.

Objectors' Exhibit 23-A is a Bedrock Geologic Map of Helena Area, west-central Montana, with annotations by Mitchell Reynolds.

Objectors' Exhibit 24 is a copy of a Geologic structure section from Helena Valley into the North Hills, T.11N., R.3W, Lewis & Clark County.

Objectors' Exhibit 25 is a copy of a page entitled: *Stratigraphic Column Of Rock And Sediment Units Present In The North Hills And North Margin Of Helena Valley.*

Objectors' Exhibit 26 is a copy of Table 2a entitled: *Geologic And Inferred Hydrologic Characteristics Of Helena Area Bedrock* (Table 2a, from U.S. Geological Survey Water Resources Investigation Report 00-4212, p. 44-53).

Objectors' Exhibit 27 is a copy of pages entitled: Critical Characteristics Of Rock And Sediment Units, As Seen In Detail, Which Affect The Hydrologic Characteristics And Inferred Hydrologic Responses Of Geologic Units In The North Hills And Adjacent Part Of Helena Valley.

Objectors' Exhibit 28 is a copy of a page entitled: *Contrasts Between Adequate Descriptions Of Cutting From Geologic Units Encountered In A Drill Hole And Inadequate Description*.

Objectors' Exhibit 29 is a copy of a page entitled: *Example Of Graphic Display Of Adequately Described Units Encountered In A Hole Drilled For Water In So-Called "Valley-Fill Sediments" In Helena Valley*.

Objectors' Exhibit 30 is a copy of a Table 2b entitled: *Approximate Range Of Values Of Permeability And Hydraulic Conductivity Of The Helena Area Bedrock* (Table 2b, from USGS Water Resources Investigations Report 00-4212, p.54).

Objectors' Exhibit 31 is entitled: ASTM Standards on Determining Subsurface Hydraulic Properties and Ground Water Modeling, Second Ed. 1999, Sec. 5 Procedure.

Objectors' Exhibit 31-A is a copy of Reference Material: ASTM Standards on Determining Subsurface Hydraulic Properties and Ground Water Modeling, Second Ed. 1999, Sec. 5 Procedure.

Objectors' Exhibit 31-B is a copy of Reference Material: Jacques W. Delleur, Editor-in-Chief, The Handbook Groundwater Engineering, Chapter 9, Well Hydraulics and Aquifer Tests.

Objectors' Exhibit 31-C is a copy of Reference Material: Domenico, P.A. and F.W. Schwartz, Physical & Chemical Hydrogeology, Chapter 5, Hydraulic Testing: Models, Methods & Applications.

Objectors' Exhibit 31-D is a copy of Reference Material: Driscoll, F.G., Groundwater & Wells, Second Edition, Chapter 16 "Collection & Analysis of Pumping Test Data," pp. 534-559.

Objectors' Exhibit 31 -D1 is a copy of Reference Material: Driscoll, F.G., Groundwater & Wells, Second Edition, p. 242.

Objectors' Exhibit 31-E is a copy of Reference Material: Fetter, C.W., Applied Hydrogeology, Chapter 7, Ground-Water Flow to Wells, pp. 197-264.

Objectors' Exhibit 31-F is a copy of Reference Material: Weight W.D. & J.L. Sonderegger, Manual of Applied Field Hydrogeology, Chapter 8, Drilling and Well Completion, Chapter 9, Pump Tests, Chapter 10, Aquifer Hydraulics.

Objectors' Exhibit 32 is a copy of ASTM Standards, continued.

Objectors' Exhibit 33 is a copy of DNRC Records of Mountain Trades & Fieldstone Estates Aquifer Test Results and Water Availability Study, including Well Logs and Pump Test Data.

Objectors' Exhibit 34 is a copy of MT DEQ Circular 1, Standards for Water Works.

Objectors' Exhibit 35 See Objectors' Exhibit No. 22.

Objectors' Exhibit 36 is a page entitled: Photographs from Mountain Trades Aquifer Test/March 2000, provided by Kathy Moore, L&C Co. WQPD.

Objectors' Exhibit 37 is a page entitled: Accumulation = Input – Output.

Objectors' Exhibit 38 is a table entitled: Groundwater Mass Balance Calculation.

Objectors' Exhibit 39 consists of two graphs both entitled: Surface Area Needed to Recharge Net Withdrawals Proposed by Fieldstone.

Objectors' Exhibit 40 is a graph entitled: North Hills Public Water Supply & Domestic Well Nitrate Data.

Objectors' Exhibit 40-A is a copy of Updated North Hills Public Water Supply & Domestic Well Nitrate Data.

Objectors' Exhibit 41 consists of a graph entitled: Glass Drive Domestic Well Nitrate Concentrations.

Objectors' Exhibit 41-A is a copy of the data used in Objector's Exhibit 41.

Objectors' Exhibit 41-B is a graph and data: Glass Drive Domestic Well Nitrate-N Data.

Objectors' Exhibit 41-C is a graph and data: Glass Drive Domestic Well Nitrate Concentrations for Summer, 2004.

Objectors' Exhibit 42 is a copy of Fieldstone Estates Phase 1 Subdivision Preliminary Plat Submittal and Environmental Assessment, October 2002.

Objectors' Exhibit 43 was withdrawn.

Objectors' Exhibit 44 was withdrawn.

Objectors' Exhibit 45 consists of copies of Objections to Application.

Objectors' Exhibit 45-A is a copy of the Clark Objection.

Objectors' Exhibit 45-B is a copy of the Drake Objection.

Objectors' Exhibit 45-C is a copy of the Pace Objection.

Objectors' Exhibit 45-D is a copy of the Brookshire Objection.

Objectors' Exhibit 45-E is a copy of the J McCormack Objection.

Objectors' Exhibit 45-F is a copy of the McNees Objection.

Objectors' Exhibit 45-G is a copy of the Wolstein Objection.

Objectors' Exhibit 45-H is a copy of the J. Tabbert Objection.

Objectors' Exhibit 45-I is a copy of the R. Tabbert Objection.

Objectors' Exhibit 45-J is a copy of the Pierson Objection.

Objectors' Exhibit 45-K is a copy of the B. McCormack Objection.

Objectors' Exhibit 46A is a copy of the Clark Water Rights.

Objectors' Exhibit 46B is a copy of the Pace Water Rights.

Objectors' Exhibit 46C is a copy of the Brookshire Water Rights

Objectors' Exhibit 46D is a copy of the J. McCormack Water Rights.

Objectors' Exhibit 46E is a copy of the McNees Water Rights.

Objectors' Exhibit 46F is a copy of the Wolstein Water Rights.

Objectors' Exhibit 46G is a copy of the Pierson Water Rights.

Objectors' Exhibit 46H is a copy of the B. McCormack Water Rights.

Objectors' Exhibit 46I is a copy of the Jason Tabbert Water Rights.

Objectors' Exhibit 47 is a copy from the US Dept of Interior Web Page – Dams, Projects & Powerplants, Bureau of Reclamation, Helena Valley Unit.

Objectors' Exhibit 48 is a copy of Applicant's Answers to Objector Vivian Drake's Discovery Requests.

Objectors' Exhibit 49 is a copy of Applicant's First Supplemental Answers to Objector Vivian Drake's Discovery Requests.

Objectors' Exhibit 50 is a copy of a map from the Briar-Madison Report.

Objectors' Exhibit 51 is a J. Gurrieri Drawing.

Objectors' Exhibit 52 was offered at hearing and received objection from Applicant based upon the element of surprise. The objection was taken under advisement. One of the purposes of the DNRC discovery rules is to prevent surprise at the hearing, and allow all parties the opportunity to fully prepare for hearing. Witnesses or evidence not properly disclosed may be precluded from use at the hearing. See *In The Matter of Application 41H-11548700 by PC Development*, Final Order (2003). The March 19, 2004 Scheduling Order required all exhibits to be disclosed by the deadline set in the Order. This exhibit is one which Applicant had knowledge of, and in fact offered a version of the same well hydrograph (MBMG Groundwater

Information Center SWL Report for well GWIC ID: 5846). However, Objectors' exhibit was prepared at a time when more recent data was available, and Objectors' exhibit contains more data than Applicant's exhibit. Applicant had no opportunity to research the reason for the difference between the two exhibits, and is therefore surprised by the offering of this exhibit at hearing. It appears that Applicant's exhibit was printed when the period of record was shorter. Applicant's objection is SUSTAINED and the Exhibit is excluded from the record.

Objectors' Exhibit 53 was offered at hearing and received objection from Applicant based upon the element of surprise. The objection was taken under advisement. One of the purposes of the DNRC discovery rules is to prevent surprise at the hearing, and allow all parties the opportunity to fully prepare for hearing. The First Prehearing Order required all exhibits to be disclosed by the deadline set in the Order. Applicant's objection is SUSTAINED and the Exhibit is excluded from the record.

Objectors' Exhibit 54 was offered at hearing and received objection from Applicant based upon the element of surprise. The objection was taken under advisement. One of the purposes of the DNRC discovery rules is to prevent surprise at the hearing, and allow all parties the opportunity to fully prepare for hearing. The First Prehearing Order required all exhibits to be disclosed by the deadline set in the Order. Applicant's objection is SUSTAINED and the Exhibit is excluded from the record.

Objectors' Exhibit 55 was offered at hearing and received objection from Applicant based upon the element of surprise. The objection was taken under advisement. One of the purposes of the DNRC discovery rules is to prevent surprise at the hearing, and allow all parties the opportunity to fully prepare for hearing. The First Prehearing Order required all exhibits to be disclosed by the deadline set in the Order. Applicant's objection is SUSTAINED and the Exhibit is excluded from the record.

Objectors' Exhibit 56 is Dr. Mitchell Reynolds' list of wells from which well cuttings were examined with regard to the Fieldstone Application.

PRELIMINARY MATTERS

Prior to the hearing the Parties stipulated that the criteria remaining at issue for the hearing include physical and legal water availability, adverse affect, and water quality. During the hearing, Objectors stipulated that their water quality concern was limited to the alleged change of ground water flow path by Applicant's proposed pumping. Objectors so stipulated

because they believe any change in ground water quality by the wastewater treatment method will be regulated by the Montana Department of Environmental Quality in their permitting process.

The Hearing Examiner, having reviewed the record in this matter and being fully advised in the premises, does hereby make the following:

FINDINGS OF FACT

General

1. Application for Beneficial Water Use Permit 411 11495000 in the name of Fieldstone Estates, LLC, and signed by Rick Kenison was filed with the Department on October 2, 2002. (Department file)
2. The Environmental Assessment (EA) prepared by the Department for this application was reviewed and is included in the record of this proceeding. (Department file)
3. Applicant seeks to appropriate 600 gallons per minute (gpm) up to 634 acre-feet of water per year from groundwater. The water is to be diverted by two wells located in the SE¼NE¼SW¼ and one well located in the NW¼SE¼NE¼, all in Section 17, Township 11 North, Range 03 West, Lewis and Clark County, Montana. The proposed uses include: 322 acre-feet for multiple domestic use for 322 households located in the NE¼, NW¼SE¼, E½E½SE¼NW¼, and E½E½NE¼SW¼; 310 acre-feet for 124 total acres of lawn and garden irrigation located on 87 acres located in the NE¼, 25 acres located in the NW¼SE¼, 6 acres located in the E½E½SE¼NW¼, and 6 acres located in the E½E½NE¼SW¼; and 2 acre-feet for 4 commercial lots located in the SE¼NE¼SW¼, all in Section 17, Township 11 North, Range 03 West, Lewis and Clark County, Montana. The proposed period of diversion and period of use for the multiple domestic and commercial purposes is January 1, through December 31, inclusive, of each year. The proposed period of diversion and period of use for the irrigation purpose is April 15, through October 15, inclusive, of each year. (Department file)

Physical Availability

4. In November 2002 Applicant conducted a 1.6 hour step-drawdown test followed by a 72 hour constant rate pump test with no intervening recovery period. Well No. 3 was pumped (southern most well) and well No. 1 (200' deep well 180' immediately north of well No. 3) was used as an observation well. Well No. 3 is 244 feet deep and the static water level at the start of

the test was 21.1 feet below ground surface. The well was pumped at 900 gpm¹ for the constant rate pumping test with the exception of a 5-10 minute shutdown when the emergency shutoff switch was accidentally triggered during refueling. The accidental 5-10 minute shutdown occurred during day two. Objectors' expert believes the early step-drawdown test and the shutdown preclude calling the test a valid and reliable constant rate test. The step-test does limit the usefulness of the test for the purpose of evaluating the connection between deep and shallow water-bearing zones or the effects of aquifer boundaries, but does not limit use of the test for the purpose of evaluating physical availability. Similarly, the slope of the drawdown curve before and after the shutdown are the same, so the effect of the shutdown does not alter the reliability of the test for the intended purposes - to meet Montana Department of Environmental Quality requirements, and to obtain sufficient information to make projections regarding physical water availability. (Department file, testimony of Patrick Faber, Vivian Drake)

5. Applicant used computations of groundwater flux to determine the amount of water available. Applicant's expert used a USGS study to estimate the total recharge to the alluvial aquifer from the bedrock aquifer surrounding the entire Helena Valley to be 13 billion gallons per year. Applicant estimated the flow through the aquifer across the 4200 foot width of the proposed subdivision at 5.67 million gallons per day using Darcy's Law. The width of the subdivision is about half the size of the cone of depression because of the location of the wells within the subdivision. (See map on page 23: Attachment No. 1: Exhibit A10, scanned and reduced in size) The average daily proposed use is 551,000 gallons per day. The flow through the aquifer in this area exceeds the proposed use from the aquifer. (Department file, testimony of Patrick Faber)

6. It is unlikely that recharge to the aquifer can be or will be increased. There are no surface sources up-gradient of proposed subdivision other than the Helena Valley Irrigation District Canal (HVIDC). It is unlikely that seepage from the HVIDC will increase and realistically could decrease if the canal is lined. Objectors believe seepage from the Helena Valley Irrigation District Canal and irrigation return flows explain the water available in the Applicant's wells. These sources provide some portion of the water found in the area aquifers. (Department file, testimony of Patrick Faber)

¹ Montana Department of Environmental Quality requires aquifer testing at 1.5 times the requested rate, thus 1.5 times 600 is 900 gpm.

7. Objectors' expert witness testified that in his opinion the geologic structure to the west of the proposed project and to the north of the proposed project does not support the physical availability of the amount of water requested for the period requested. Objectors' expert believes the sources of recharge for Applicant's wells are limited to the area from the geographic surface divide to the north of Applicant's wells down to the wells; movement is exclusive through fractures in the bedrock; and runoff contributes little recharge to area bedrock aquifers. Objectors' Expert does not believe the 1986 Briar and Madison USGS report can be used to reliably predict the current potentiometric surface in the Helena Valley. (Department file, testimony of Mitchell Reynolds)

8. The water to be pumped through Applicant's wells must come from increased recharge to the aquifer, decreased discharge from the aquifer, or storage. Initially water pumped from the wells will come from storage as a cone of depression develops around the wells. The cone of depression will continue to expand until it reaches an area of groundwater discharge, or it induces an increase in recharge. Increasing recharge to the aquifer is not likely in this area for the reasons given by Mr. Faber in Finding of Fact No. 6 above, so that leaves a decrease in storage or aquifer discharge to offset the proposed appropriation. Aquifer discharge in this area is through agricultural drains to the south and east, and the regional discharge area at Lake Helena to the southeast. The cone of depression caused by the proposed pumping will continue to increase until it reduces discharge to these drains or to Lake Helena. The Department measured 175 gpm flowing in the agricultural drains in July 2003, and so therefore the cone of depression will continue to expand until it reaches Lake Helena probably over a considerable number of years. (testimony of Joe Gurrieri, Russell Levens). Using the 1986 Briar and Madison USGS report which estimates the total recharge to the alluvial aquifer from the bedrock aquifer surrounding the entire Helena Valley to be 13 billion gallons per year and Darcy's Law, the flow through the aquifer under the proposed subdivision is 5.67 million gallons per day or 3937 gpm². In addition, Mr. Levens' estimates that drawdown in Well No. 1 after 1000 days of continuous pumping well No. 3 at 894 gpm will approach 10 feet which leaves a column of water in the well sufficient to continue supplying the requested rate. The proposed pumping rate is two-thirds the rate Applicant and Mr. Levens used in their analyses, thus the analyses overestimate what will happen by pumping at a lower rate. Applicant proposes to pump a peak

² (5,670,000 gal/d / 1440 m/d)=3937 gpm

rate of 600 gpm and an average rate of 393 gpm³, not the 900 gpm used in these analyses. The aquifer can provide the amount of water requested by the Applicant. (Department file, testimony of Patrick Faber)

Legal Availability

9. Applicant looked at the demand of wells within a 4000 foot radius, a distance the Applicant considered significant in regard to impact to other wells. The shallow wells will continue to have water available as long as the HVIDC continues to provide leakage (seepage) and irrigation return flows are available. The shallow USGS monitoring well (46' deep) fluctuates annually about five (5) feet and Applicant's impact to the shallow aquifer is expected to be less than five (5) feet. There is no evidence that the HVIDC will not continue to leak. The deep wells within the full cone of depression, wells deeper than 70 feet deep, use 1.6 million gallons per day (including Applicant's requested 634 acre-feet) which is less than the 10.8 million gallons per day physically available. Thus, Applicant has provided evidence that the legal demands within the area of potential impact will continue to be met after Applicant's project begins taking water. Objectors believe water from the HVIDC and irrigation return flows cannot be considered to determine water is legally available. However, the water is currently available with annual water level fluctuations of less than five (5) feet. To the extent the water level is recharged by seepage from the HVIDC, the water has left the control of the HVIDC. (Department file, testimony of Patrick Faber, Dr. Mitchell Reynolds)

10. Sustainability beyond a single season of full use of both physical and legal water availability is of concern by the Objectors. Applicant has shown that for present conditions water will be physically and legally available in the amount requested throughout a season of use. (Department file, testimony of Patrick Faber, Joe Gurrieri, Russell Levens)

Adverse Effect

11. Applicant's drawdown measurements in Objectors' wells during Applicant's pumping test and Objectors' Exhibit 20 (*NORTH GLASS DRIVE CLAY PROFILE*), suggests the shallow aquifer is not directly connected to the deep aquifer. However, the expert testimony at hearing is that the shallow and deep zones are connected through leaky or discontinuous confining layers. (Department file, testimony of Patrick Faber, Dr. Mitchell Reynolds, Vivian Drake, Joe Gurrieri)

³ $(634 \text{ af/y} * 325851 \text{ g/af}) / (365 \text{ d/y} * 1440 \text{ m/d}) = 393 \text{ gpm}$. The constant pumping rate of 393 gpm for 365 days (determined by the Hearing Examiner from the file and testimony) will produce the entire requested volume of 634 acre-feet. The figure 383 gpm (not 393 gpm) is found in the Department file.

12. A USGS monitoring well located approximately ½ mile from the proposed wells has 25 years of record with less than 5 feet of seasonal fluctuation after which the water level returns to its winter baseline levels. The aquifer in the vicinity of Applicant's wells shows a level trend in static water levels and does not fluctuate seasonally more than the drawdown observed in the 73.6 hour pumping test. This shows the shallow aquifer above the proposed project has not been affected by drought or area development, supports the importance of the HVIDC seepage and irrigation return flows as source of constant recharge, and shows the shallow aquifer can sustain the pumping proposed by Applicant. However, the shallow aquifer water level should be monitored to show the aquifer trends and provide advance warning of any changes in the aquifer condition. (Department file, testimony of Patrick Faber, Vivian Drake)

13. Applicant monitored water levels in some Objectors' wells during Applicant's pumping test. Applicant did not measure operational drawdown in Objectors' wells, and Objectors did not provide the operational drawdown for their wells. Most Objectors' water levels followed the antecedent water level trend without any additional downward drawdown. When aquifer characteristics determined in the pumping test were used to predict drawdown in nearby Objectors' wells, larger drawdown was predicted than was measured, thus showing that the shallow wells and deep wells are not in one homogenous aquifer. However, some Objector wells had both up and down fluctuating water levels which the Applicant explained by pump operation during the Applicant's pumping test. Objectors' wells were not affected during Applicant's pump test. However, the Objectors' wells may be affected if the HVIDC does not continue to provide leakage to the shallow aquifer. The nature of the proposed subdivision and other domestic uses is such that an early warning of declining water levels is needed to show that water continues to be available without adverse effect as the subdivision is completed. If monitoring shows declining water levels, steps can be taken by the Applicant to minimize impacts to existing appropriators, and the Applicant, by helping to find the cause of impacts. (Department file, testimony of Patrick Faber)

14. The drawdown from pumping the proposed project wells leveled out at about five (5) feet, 180 feet from the pumping well, in the 73.6 hour pumping test. The projected drawdown in the deeper wells levels out at 4.5 feet and does not get to five (5) feet until 1000 days have passed; however, drawdown will continue to increase. Wells in the deep aquifer have typical well depths near 200 feet and static water levels⁴ in the twenty foot range, which leaves a water

⁴ Static water level is natural groundwater level, observed in a well, that is not affected by pumping of ground water.

column of 180 feet for a 200 foot deep well. The drawdown in the pumping well during Applicant's pumping test did not exceed 17 feet at the 900 gpm pumping rate. Thus, wells in the deep aquifer with a 180 foot water column and a pumping drawdown of 17 feet and 5 additional feet of drawdown from the proposed project pumping will not be affected by pumping Applicant's wells. (Department file, testimony of Patrick Faber)

15. Applicant plans to meter each domestic use and water diverted from the wells to assure water over and above any amount permitted is not diverted from the aquifer. Applicant's project is near the zone where the alluvial aquifer pinches out and the bedrock aquifer is the aquifer closest to the surface. Applicant did not see any effects of aquifer boundaries during the 73.6 hour pumping test. After longer periods of pumping aquifer boundaries are expected to impact the water levels in the area. Larger drawdown would be expected to the north near the limit of the aquifer and smaller drawdown would be expected to the south toward the Helena Valley. Water level monitoring in the shallow and deep aquifer are needed to show that water continues to be available from storage, leakage from the HVIDC, or discharge to Lake Helena, without adverse effect to prior appropriators, or if there is adverse effect later on, to distinguish the effects of changing (i.e., reducing or eliminating) recharge from irrigation return flow and seepage from the HVIDC from the usage by Fieldstone Estates. (Department file, testimony of Dr. Mitchell Reynolds, Joe Gurrieri, Russell Levens)

Adequacy of Appropriation Works

16. The three project wells were drilled by a water well driller licensed in the State of Montana. The water system was designed by a professional engineer licensed in the State of Montana. Double check valves will be used to reduce the risk of back siphoning and water use will be metered at each service and each well. A state certified water system operator will be employed to operate and maintain the water system. The means of diversion and operation of the proposed project is adequate. (Department file)

Beneficial Use

17. Flow rate and volumes for the proposed subdivision were estimated by Applicant's engineer using Department water use standards. The requested flow rate and volume are reasonable for the proposed uses. (Department file, testimony of James E. Taylor, P.E.)

Possessory Interest

18. Applicant is the owner of the property which has been designated in the Application as the place of use. (Department file, testimony of Rick Kenison)

Water Quality Issues

19. No objections relative to water classification or to the ability of a discharge permit holder to satisfy effluent limitations of his permit were filed against the project. (Department file.)
20. Objections relative to water quality of prior appropriators were filed against this application. At hearing Objectors stipulated that their objection to the effects on water quality from Applicant's proposed waste disposal system would be taken care by conditions on any Montana Department of Environment Quality discharge permit issued for the subdivision. There will be no adverse affect to the water quality of Objectors from Applicant's waste disposal when the necessary permits required by the Montana Department of Environment Quality for the subdivision are obtained and followed. (Department file, stipulation voiced at hearing by Objectors' counsel Richard Thweatt)
21. Objectors' remaining water quality concern is that the quality of Objectors' water will be altered by a change in the aquifer flow path created by Applicant's proposed pumping. Expert witness Vivian Drake was allowed to testify regarding her opinion of the impact of Applicant's pumping on the water quality of Objectors over the objection of the Applicant which was taken under advisement. Applicant objected to testimony of witness Vivian Drake on the impact of the flow path on water quality based on surprise. Objectors' witness disclosure states in part that Ms. Drake will testify regarding the "ongoing water quality degradation and potential contamination of existing domestic water wells from increased subdivision wastewater disposal." However, Objectors' Prehearing Memorandum (July 8, 2004) does state "There is a reasonable scientific probability that withdrawal of water by the Applicant will significantly accelerate the intrusion of nitrates and related pollutants into the domestic wells of the Objectors and cause them to exceed the MCL for nitrates." Applicant was noticed that the impacts of pumping on the water quality of the Objectors was a concern of Objectors. Applicant does not appear to have been told which witness would testify regarding those impacts. Although testimony of this witness regarding impacts to water quality by altering the flow path by Applicant's pumping was not disclosed, Applicant should not have been surprised by the testimony. Applicant's objection to testimony on this topic by this witness is OVERRULED.

Applicant's wells are in an area influenced by the HVIDC and the southern two wells are in the alluvial aquifer. The area has background levels of nitrate which fluctuate, and occasionally exceed the maximum contaminant level allowed for public drinking water supplies. Pumping the Applicant's wells in the alluvial aquifer with the high transmissivity and water

currently physically available will not cause significant drawdown in the aquifer. The small amounts of predicted drawdown will not significantly affect flow paths outside the immediate vicinity of Applicant's wells. The predicted drawdown is small and the cone of depression is fairly flat, so the gradient of the flow path will not change significantly and nitrates will not migrate deeper into the aquifer. Water quality of prior appropriators in the aquifer will not be adversely affected under current conditions. If the HVIDC were to stop leaking into the aquifer, there may be changes in the aquifer water levels in reaching a new equilibrium state. Monitoring of the water levels in the shallow and deep aquifer are necessary to provide advance knowledge of aquifer water level changes and possible flow path changes if the aquifer water levels drop significantly changing the flow path in the aquifer. (Department file, testimony of Patrick Faber, Vivian Drake)

Based on the foregoing Findings of Fact and the record in this matter, the Hearing Examiner makes the following:

CONCLUSIONS OF LAW

1. The Department has jurisdiction to issue a provisional permit for the beneficial use of water if the applicant proves the criteria in Mont. Code Ann. § 85-2-311 by a preponderance of the evidence. Mont. Code Ann. § 85-2-311(1).
2. The EA contains a finding of No Significant Adverse Impact from secondary and cumulative impacts on the physical environment and human population based upon pending water use permit applications in the area of Fieldstone Estates at the time the EA was prepared (February 13, 2003). At hearing the Objectors voiced concern that any cumulative impacts from the pending nearby Bridge Creek Estates water use permit application had not been included in the EA. If the Objectors in this matter believed the Fieldstone EA to be inadequate in its assessment of cumulative impacts, the time and place to contest that is not at this hearing which was held to determine if the water use permitting criteria are met. See Mont. Code Ann. §2-4-701 and See *In the Matter of Water Use Permit Application No. 41H 11495000*, Notice of Hearing and Appointment of Hearing Examiner, (2003). An administrative hearing, proposal for decision, final order and appeal of that final order pursuant to a petition for judicial review are all separate from a proceeding alleging the inadequacy of the EA. *MEIC v. DNRC and Sharp*, Memorandum and Order, Cause No. CDV-2001-309 (Sept. 5, 2001)(court dismissed

declaratory relief sought in combination with a petition for judicial review of an agency final decision). See Finding of Fact No. 2.

3. A permit shall be issued if there is water physically available at the proposed point of diversion in the amount that the applicant seeks to appropriate; water can reasonably be considered legally available during the period in which the applicant seeks to appropriate, and in the amount requested, based on an **analysis** of the evidence on physical water availability and the existing legal demands, including but not limited to a comparison of the physical water supply at the proposed point of diversion with the existing legal demands on the supply of water; the water rights of a prior appropriator under an existing water right, a certificate, a permit, or a state reservation will not be adversely affected based on a consideration of an applicant's **plan** for the exercise of the permit that demonstrates that the applicant's use of the water will be controlled so the water right of a prior appropriator will be satisfied; the proposed means of diversion, construction, and operation of the appropriation works are adequate; the proposed use of water is a beneficial use; the applicant has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use; and, if raised in a valid objection, the water quality of a prior appropriator will not be adversely affected, the proposed use will be substantially in accordance with the classification of water, and the ability of a discharge permit holder to satisfy effluent limitations of a permit will not be adversely affected. Mont. Code Ann. § 85-2-311 (1) (a) through (h).

4. The Applicant has proven that water is physically available at the proposed point of diversion in the amount Applicant seeks to appropriate, and in the amount requested. The aquifer can provide the amount of water requested by the Applicant. Mont. Code Ann. § 85-2-311(1)(a)(i). See Finding of Fact Nos. 4, 5, 6, 7, 8.

5. The Applicant has proven that water can reasonably be considered legally available. Sustainability beyond the amount of water requested (i.e., beyond a single season, or up to a year of full use) for both physical and legal water availability is a concern of the Objectors. Objectors cite "Thom Farms, Inc.", See *In the Matter of Application 41S 30000871 By Thom Farms, Inc.*, Proposal For Decision, (2003). Objectors' reading of Thom Farms, Inc. would have an Applicant prove the water availability criteria for as long as the water is used, possibly 'generations', but that is not what was required in Thom Farms. There the water availability and impacts of the amount requested (i.e., a season's use) is what the Hearing Examiner found missing. In Thom Farms the Applicant's observation well did not have any drawdown which

would have allowed Applicant or Department to determine the characteristics of the aquifer and make projections for a season's use. Thom Farms did not require the Applicant to prove the water use permitting criteria for as long as the water would be used. Here, Applicant has shown that for present conditions water will be physically and legally available in the amount requested for the proposed uses.

Some part of the available water comes from the HVIDC. After water seeps from the HVIDC, it has left the control of the Helena Valley Irrigation District, and is available for appropriation by others **including the Applicant and Objectors**. See *Popham v. Holloron*, 275 P. 1099 (Mont. 1929). Objectors suggest that a condition generally stating that part of the water is imported and that the Department cannot require that the water continue to be imported from the HVIDC. In the end, the issue is whether there is water available in the aquifer for appropriation, and that was found to be the case, rather than whether continued seepage from the HVIDC, imported or not, can be insisted upon by the Applicant (or the Objectors). Mont. Code Ann. §§85-2-311(1)(a) (i), (ii). See Finding of Fact Nos. 6, 7, 8, 9, 10.

6. Applicant has proven the water rights of a prior appropriator under an existing water right, a certificate, a permit, or a state reservation will not be adversely affected based on a consideration of an applicant's **plan** for the exercise of the permit that demonstrates that the applicant's use of the water will be controlled so the water right of a prior appropriator will be satisfied when the amount of water used and aquifer water levels are monitored. Applicant's plan is to monitor water used at each well and at each lot. However, in this location near the edge of the aquifer, and with the unknown effects of a shutdown or lining of the HVIDC on water levels in the shallow and deep aquifers, it is prudent to require monitoring of water levels in both aquifers to show exercise of Applicant's use does not cause adverse effect under any future conditions. In addition, monitoring would provide data which will provide evidence to distinguish the effects of changing recharge from irrigation return flow and seepage from the canal (i.e., reducing or eliminating) from the usage by Fieldstone Estates. That is, if HVIDC is shut down the evidence has shown the shallow aquifer and all who appropriate from it may be affected. Therefore, to determine in that situation whether or not Fieldstone Estates' continued use of the deep aquifer would have any adverse effect on Objectors, monitoring is necessary. It can be anticipated that if the HVIDC is shut down or lined there will be differing opinions on who is the cause of any alleged impacts on area shallow or deep wells. Monitoring will also forewarn the

Applicant of changing water level trends in the shallow or deep aquifer such that advance preventive measures, in regard to both water quantity and quality could be taken by Applicant.

Applicant can use the existing 46 foot deep USGS well to monitor the shallow aquifer water levels. If it becomes unavailable, then Applicant must install a shallow dedicated observation well in the southeast corner of the subdivision to a depth similar to the USGS well (46'). Applicant must also install a dedicated observation well into the deep alluvial aquifer within the subdivision boundaries. Mont. Code Ann. § 85-2-311(1)(b). See Finding of Fact Nos. 11, 12, 13, 14, 15.

7. The Applicant has proven that the proposed means of diversion, construction, and operation of the appropriation works are adequate. Mont. Code Ann. § 85-2-311(1)(c). See Finding of Fact No. 16.

8. The Applicant has proven the proposed use of water is a beneficial use of water for which Applicant can establish a water right under a permit. Mont. Code Ann. § 85-2-311(1)(d). See Finding of Fact No. 17.

9. The Applicant has proven a possessory interest in the property where water is to be put to beneficial use. Mont. Code Ann. § 85-2-311(1)(e). See Finding of Fact No. 18.

10. The Applicant has proven the water quality of a prior appropriator will not be adversely affected when a proper waste discharge permit is issued to the Applicant by the Montana Department of Environment Quality for the subdivision. Therefore, applicant must obtain a proper subdivision waste disposal permit issued by the Montana Department of Environment Quality prior to use of water. The water quality objections also included impacts of Applicant's pumping on the water quality of objectors if the flow path of the existing nitrate contaminant in the aquifer is altered such that contaminant level at Objectors' wells is increased. The flow path is not expected to change significantly during repeated annual cycles if the HVIDC continues to provide seepage to area aquifers. In the event the HVIDC seepage is curtailed, monitoring of the water levels in the shallow and deep aquifer are necessary to provide data which will provide evidence to distinguish the effects, if any, of changing recharge from irrigation returns and seepage from the canal from usage by Fieldstone Estates. Mont. Code Ann. § 85-2-311(1)(f), (g), (h). See Finding of Fact No. 20, 21.

11. The Department may issue a permit subject to terms, conditions, restrictions, and limitations it considers necessary to satisfy the criteria for issuance of a beneficial water use

permit. Applicant has met the criteria for issuance of a permit when conditions are applied.

Mont. Code Ann. § 85-2-312. See Conclusions of Law Nos. 6, 10.

WHEREFORE, based upon the foregoing Findings of Fact and Conclusions of Law, the Hearing Examiner makes the following:

PROPOSED ORDER

Subject to the terms, conditions, restrictions, and limitations listed below, Beneficial Water Use Permit 41I 11495000 is GRANTED to Fieldstone Estates to appropriate 600 gallons per minute (gpm) up to 634 acre-feet of water per year from groundwater. The water will be diverted by two wells located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ and one well located in the NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$, all in Section 17, Township 11 North, Range 03 West, Lewis and Clark County, Montana. The uses include: 322 acre-feet for multiple domestic use for 322 households located in the NE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, E $\frac{1}{2}$ E $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$, and E $\frac{1}{2}$ E $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$; 310 acre-feet for 124 total acres of lawn and garden irrigation located on 87 acres located in the NE $\frac{1}{4}$, 25 acres located in the NW $\frac{1}{4}$ SE $\frac{1}{4}$, 6 acres located in the E $\frac{1}{2}$ E $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$, and 6 acres located in the E $\frac{1}{2}$ E $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$; and 2 acre-feet for 4 commercial lots located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$, all in Section 17, Township 11 North, Range 03 West, Lewis and Clark County, Montana. The period of diversion and period of use for the multiple domestic and commercial purposes is January 1, through December 31, inclusive, of each year. The period of diversion and period of use for the irrigation purpose is April 15, through October 15, inclusive, of each year.

A. The appropriator shall install a water use measuring device approved by the regional manager at a point designated by the regional office to allow the flow rate and volume of water diverted to be recorded. Water must not be diverted until the required measuring device is in place and operating. On a form provided by the Department, the appropriator shall keep a written monthly record of the flow rate and volume of all water diverted including the period of time, and shall submit the records by November 30th of each year. The regional manager may also request measurement records at other times during the year. Failure to submit reports may be cause for revocation or modification of a permit or change. The records must be sent to the Helena Water Resources Regional Office, 1424 9th Avenue, PO Box 201601, Helena, MT 59620-1601 PH: 406.444.6999, Fax: 406.444.9317.

The appropriator shall maintain the measuring device so it always operates properly and measures flow rate accurately.

B. The appropriator shall install a water use measuring device at a point in the service to each lot to allow the total volume of water used on each lot to be recorded. Water must not be diverted until the required measuring device is in place and operating. On a form provided by the Department, the appropriator shall keep a written annual record of the volume of all water used on each lot, and the total volume used under this appropriation, and shall submit the records by November 30th of each year. Failure to submit reports may be cause for revocation or modification of a permit or change. The records must be sent to the Helena Water Resources Regional Office, 1424 9th Avenue, PO Box 201601, Helena, MT 59620-1601 PH: 406.444.6999, Fax: 406.444.9317.

The measuring devices shall be maintained such that the measuring devices always operate properly and measure volume accurately.

C. The Appropriator must monitor and record water levels in the shallow and deep aquifers. To monitor the shallow aquifer, Applicant can use the existing 46 foot deep USGS well. If it is no longer accessible, then Applicant must install a dedicated observation well in the southeast corner of the subdivision to a depth similar to the USGS well (46'). To monitor the deep alluvial aquifer, an observation well must be located within the subdivision boundary, installed and constructed into the deep alluvial aquifer according to Mont. Admin. R. 36.21 Sub-chapter 8 (Monitoring Well Construction Standards), and dedicated to observation of deep aquifer water levels. The Appropriator shall measure and record the static water level each year in both wells during each of the following time periods: 1) January 1st - 15th; 2) April 15th - 30th; 3) June 15th - 30th; 4) September 1st - 15th. Records must include the water level, method of measurement, date and time of measurement and description of the measuring point on the casing. The measurement shall be recorded only at a time when the water level is static or there is no significant change in measurements taken 1-2 minutes apart. Submit the records to the Water Resources Regional Office by November 30th of each year and/or upon request to the Water Resources Regional Office.

D. The Appropriator shall apply for and receive a waste discharge permit from the Montana Department of Environmental Quality prior to diversion of any water under this permit. Appropriator shall maintain compliance with such discharge permit at all times water is diverted under this permit.

NOTICE

This Proposal for Decision may be adopted as the Department's final decision unless timely exceptions are filed as described below. Any party adversely affected by this Proposal for Decision may file exceptions and a supporting brief with the Hearing Examiner and request oral argument. Exceptions and briefs, and requests for oral argument must be filed with the Department by December 21, 2004, or postmarked by the same date, and copies mailed by that same date to all parties.

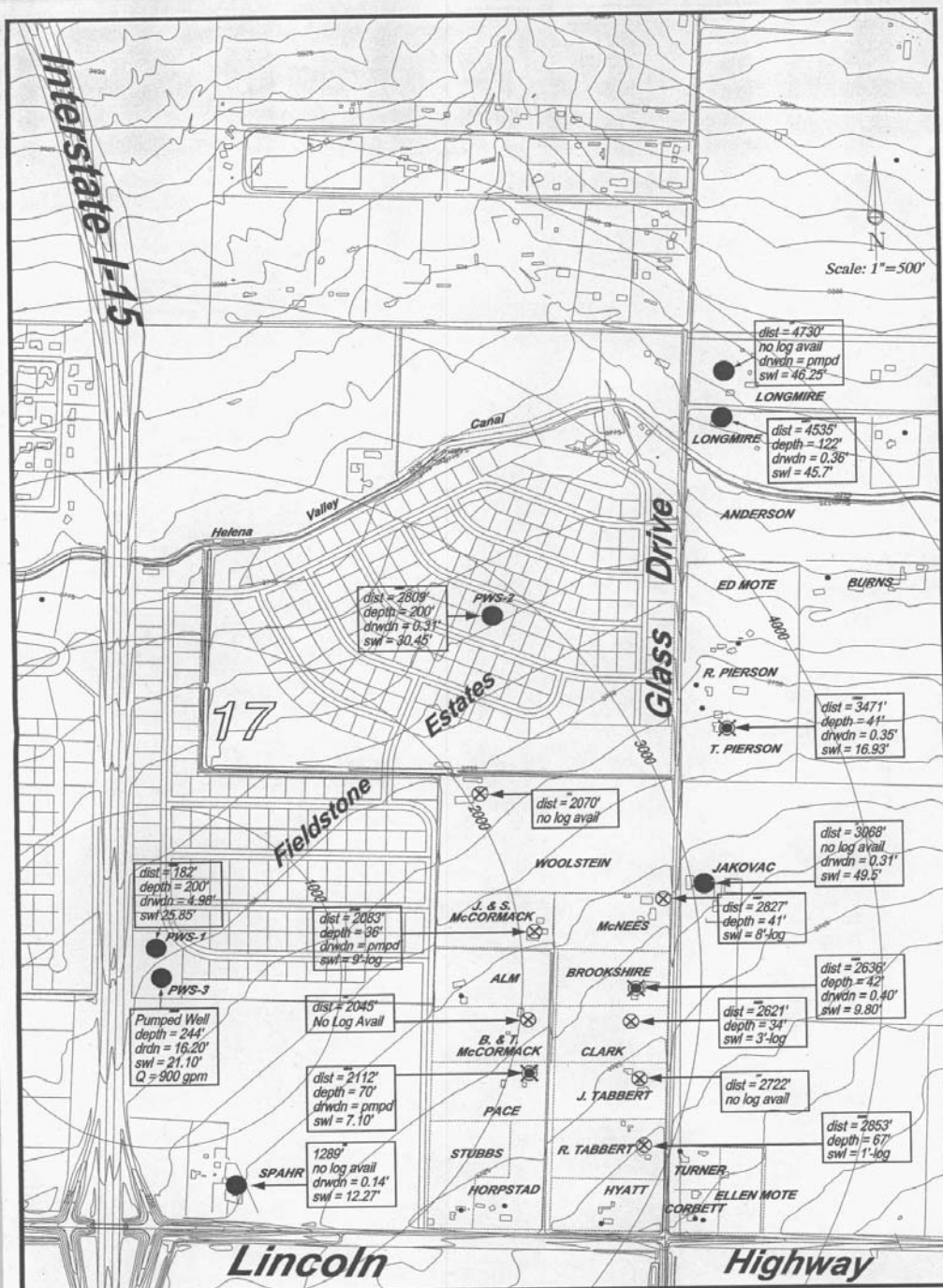
Parties may file responses and response briefs to any exception filed by another party. The responses and response briefs must be filed with the Department by January 10, 2005, or postmarked by the same date, and copies must be mailed by that same date to all parties. No new evidence will be considered.

No final decision shall be made until after the expiration of the above time periods, and due consideration of *timely* oral argument requests, exceptions, responses, and briefs.

Dated this 1st day of December, 2004.

Charles F Brasen
Hearings Officer
Water Resources Division
Department of Natural Resources
and Conservation
PO Box 201601
Helena, Montana 59620-1601

Att: Attachment No. 1: Exhibit A10, scanned and reduced by Hearing Examiner



Att No. 1: Exhibit A10 (Scanned and Reduced by Hearing Examiner)

CERTIFICATE OF SERVICE

This certifies that a true and correct copy of Proposal For Decision was served upon all parties listed below on this 1st day of December 2004, by first-class United States mail.

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